



# Grass Trimmer/Brush Cutter

## *Operator's Manual*

**MODEL      SRM - 410U**

### **WARNING** **DANGER**



The muffler or catalytic muffler and surrounding cover may become extremely hot.

Always keep clear of exhaust and muffler area, otherwise serious personal injury may occur.



### **WARNING**



The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



### **WARNING**

Read rules for safe operation and instructions carefully. ECHO provides an Operator's Manual and a Safety Manual. Both must be read and understood for proper and safe operation.

## INTRODUCTION

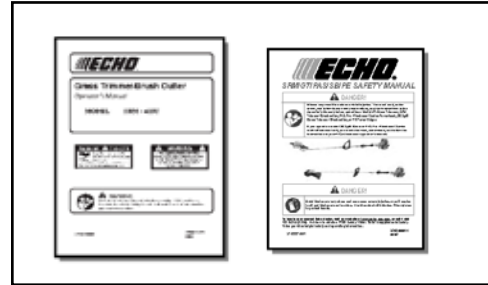
Welcome to the ECHO family. This ECHO product was designed and manufactured to provide long life and on-the-job dependability. Read and understand this manual and the SAFETY MANUAL you found in the same package. You will find both easy to use and full of helpful operating tips and SAFETY messages.

## THE OPERATOR'S MANUAL

Read and understand this manual before operation. Keep it in a safe place for future reference. Contains specifications and information for operation, starting, stopping, maintenance, storage and assembly specific to this product.

## THE SAFETY MANUAL

Read and understand this manual before operation. Keep it in a safe place for future reference. Explains possible hazards involved with the use of Grass Trimmers and Brush Cutters and what measures you should take to make their use safer.



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Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories, and may not include all standard equipment.


## SAFETY

### MANUAL SAFETY SYMBOLS AND IMPORTANT INFORMATION


Throughout this manual and on the product itself, you will find safety alerts and helpful, informational messages preceded by symbols or key words. The following is an explanation of those symbols and key words and what they mean to you.

 **DANGER**


The safety alert symbol accompanied by the word “DANGER” calls attention to an act or condition which WILL lead to serious personal injury or death if not avoided.

 **WARNING**

The safety alert symbol accompanied by the word “WARNING” calls attention to an act or condition which CAN lead to serious personal injury or death if not avoided.

 **CAUTION**

The safety alert symbol accompanied by the word “CAUTION” calls attention to an act or condition which may lead to minor or moderate personal injury if not avoided.

 **CIRCLE AND SLASH SYMBOL**

This symbol means the specific action shown is prohibited. Ignoring these prohibitions can result in serious or fatal injury.









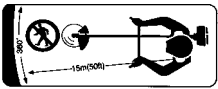
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




This enclosed message provides tips for use, care and maintenance of the unit.

**IMPORTANT**


The enclosed message provides information necessary for the protection of the unit.

### INTERNATIONAL SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	"WARNING, SEE OPERATOR'S MANUAL"		Hot Surface
	Wear eye, ear and head protection		Finger Severing
	Wear hand and foot protection		DO NOT allow flames or sparks near fuel.
	Safety/Alert		DO NOT smoke near fuel.
			Keep bystanders and helpers away 15 m (50 ft.).

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	Emergency Stop		Fuel and oil mixture
	Carburetor Adjustment - High speed mixture		Primer Bulb
	Carburetor Adjustment - Idle speed		Ignition ON/OFF
	Carburetor Adjustment - Low speed mixture		Do not use blades. String line only
	Choke Control "Run" Position (Choke Open)		Choke Control "Cold Start" Position (Choke Closed)

### PERSONAL CONDITION AND SAFETY EQUIPMENT

 **WARNING**

Users of this product risk injury to themselves and others if the unit is used improperly and/or safety precautions are not followed. Proper clothing and safety gear must be worn when operating unit.

### ***Physical Condition***

Your judgment and physical dexterity may not be good:

- if you are tired or sick,
- if you are taking medication,
- if you have taken alcohol or drugs.

Operate unit only if you are physically and mentally well.

### ***Eye Protection***

Wear eye protection that meets ANSI Z87.1 or CE requirements whenever you operate the unit.

### ***Hand Protection***

Wear no-slip, heavy-duty work gloves to improve your grip on the handle. Gloves also reduce the transmission of machine vibration to your hands.

### ***Hearing Protection***

ECHO recommends wearing hearing protection whenever unit is used.

### ***Proper Clothing***

Wear snug fitting, durable clothing;

- Pants should have long legs, shirts with long sleeves.
- DO NOT WEAR SHORTS,
- DO NOT WEAR TIES, SCARFS, JEWELRY.

Wear protective hair covering to contain long hair.

Wear sturdy work shoes with nonskid soles;

- DO NOT WEAR OPEN TOED SHOES,
- DO NOT OPERATE UNIT BAREFOOTED.

Keep long hair away from engine and air intake. Retain hair with cap or net.

### ***Hot Humid Weather***

Heavy protective clothing can increase operator fatigue which may lead to heat stroke. Schedule heavy work for early morning or late afternoon hours when temperatures are cooler.

### ***Extended Operation/Extreme Conditions***

It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals, may be brought about by exposure to vibration and cold. Exposure to vibration and cold may cause tingling and burning sensations, followed by loss of color and numbness in the fingers. The following precautions are strongly recommended, because the minimum exposure, which might trigger the ailment, is unknown.

- Keep your body warm, especially the head, neck, feet, ankles, hands, and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks, and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the unit or other hand-held power equipment is not required.
- If you experience discomfort, redness, and swelling of the fingers followed by whitening and loss of feeling, consult your physician before further exposing yourself to cold and vibration.

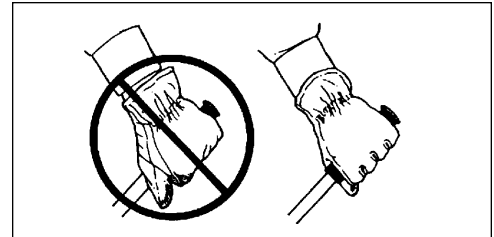


## ***Repetitive Stress Injuries***

It is believed that overusing the muscles and tendons of the fingers, hands, arms, and shoulders may cause soreness, swelling, numbness, weakness, and extreme pain in those areas. Certain repetitive hand activities may put you at a high risk for developing a Repetitive Stress Injury (RSI). An extreme RSI condition is Carpal Tunnel Syndrome (CTS), which could occur when your wrist swells and squeezes a vital nerve that runs through the area. Some believe that prolonged exposure to vibration may contribute to CTS. CTS can cause severe pain for months or even years.

To reduce the risk of RSI/CTS, do the following:

- Avoid using your wrist in a bent, extended, or twisted position. Instead try to maintain a straight wrist position. Also, when grasping, use your whole hand, not just the thumb and index finger.
- Take periodic breaks to minimize repetition and rest your hands.
- Reduce the speed and force with which you do the repetitive movement.
- Do exercise to strengthen the hand and arm muscles.
- Immediately stop using all power equipment and consult a doctor if you feel tingling, numbness, or pain in the fingers, hands, wrists, or arms. The sooner RSI/CTS is diagnosed, the more likely permanent nerve and muscle damage can be prevented.



## **DANGER**

Do not operate this product indoors or in inadequately ventilated areas. Engine exhaust contains poisonous emissions and can cause serious injury or death.

## ***Read the Manuals***

- Provide all users of this equipment with the Operator's Manual and Safety Manual for instructions on Safe Operation.

## ***Clear the Work Area***

- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 15 m (50 ft.) while the unit is in use.

## ***Keep a Firm Grip***

- Hold the front and rear handles with both hands, with thumbs and fingers encircling the handles.

## ***Keep a Solid Stance***

- Maintain footing and balance at all times. Do not stand on slippery, uneven or unstable surfaces. Do not work in odd positions or on ladders. Do not over reach.

## ***Avoid Hot Surfaces***

- Keep exhaust area clear of flammable debris. Avoid contact during and immediately after operation.



## EQUIPMENT



### WARNING

Use only ECHO approved attachments. Serious injury may result from the use of a non-approved attachment combination. ECHO, INC. will not be responsible for the failure of cutting devices, attachments or accessories which have not been tested and approved by ECHO. Read and comply with all safety instructions listed in this manual and safety manual.

- Check unit for loose/missing nuts, bolts, and screws. Tighten and/or replace as needed.
- Inspect shield for damage and ensure that the cut-off knife is securely in place. Replace if either is damaged or missing.
- Check that the cutting attachment is firmly attached and in safe operating condition.
- Check that front loop handle and shoulder strap/ or shoulder/waist harness are adjusted for safe, comfortable operation. See Assembly Section for proper adjustment.



### WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings.

- **ALWAYS** stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.
- **DO NOT** start or operate unit unless all guards and protective covers are properly assembled to unit.
- **NEVER** reach into any opening while the engine is running. Moving parts may not be visible through openings.



### WARNING

Check fuel system for leaks due to fuel tank damage, especially if the unit is dropped. If damage or leaks are found, do not use unit, otherwise serious personal injury or property damage may occur. Have unit repaired by an authorized servicing dealer before using.

## EMISSION CONTROL

### *EPA Phase 2*

The emission control system for the engine is EM (Engine Modification)

#### IMPORTANT ENGINE INFORMATION

ENGINE FAMILY: 9EHS.0434RB DISPLACEMENT: 42.7cc  
 EMISSION COMPLIANCE PERIOD: 300Hours  
 THIS ENGINE MEETS U.S.EPA PH2 EXHAUST  
 EMISSION REGULATIONS FOR S.O.R.E. REFER TO OWNER'S  
 MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.



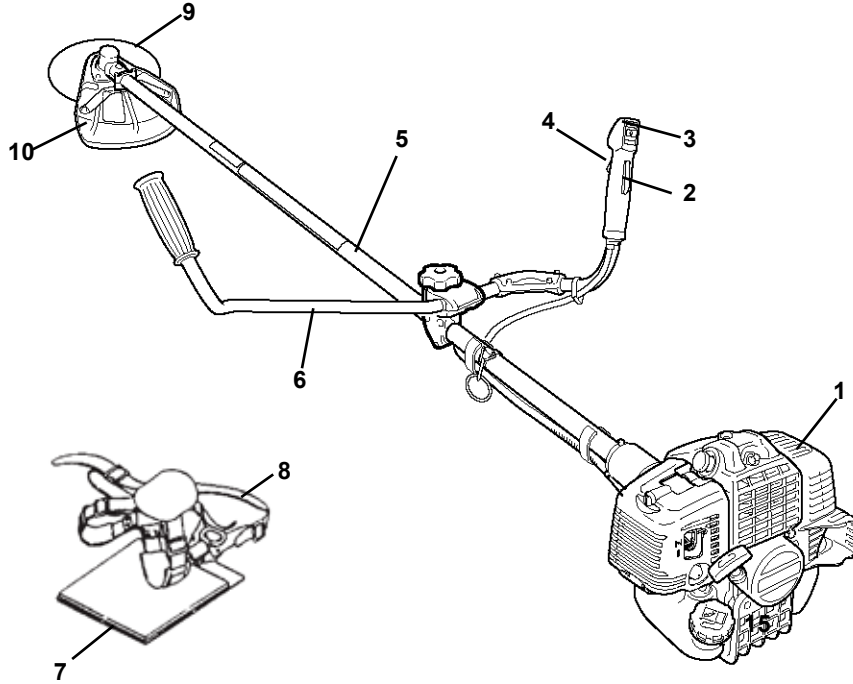
**An Emission Control Label** is located on the engine. (This is an EXAMPLE ONLY, information on label varies by engine FAMILY).

#### PRODUCT EMISSION DURABILITY (EMISSION COMPLIANCE PERIOD)

The 300 hour emission compliance period is the time span selected by the manufacturer certifying the engine emissions output meets applicable emissions regulations, provided that approved maintenance procedures are followed as listed in the Maintenance Section of this manual.

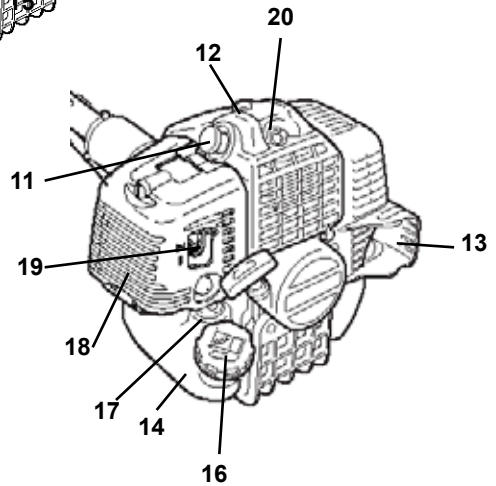
### DESCRIPTION

Locate these safety decals on your unit. Make sure the decals are legible and that you understand and follow the instructions on them. If a decal cannot be read, a new one can be ordered from your ECHO dealer. See PARTS ORDERING instructions for specific information.



### Hot Decal (near muffler)

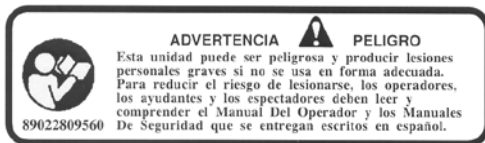
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### Shaft Decal

### Spanish Decal

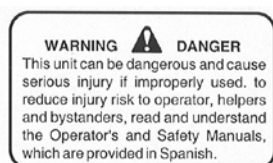
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P/N 89016054130



### English Translation



### Metal Debris Shield Decal

P/N 89011841031



1. **POWER HEAD** - Includes the Engine, Clutch, Fuel System, Ignition System and Recoil Starter.
2. **THROTTLE TRIGGER LOCKOUT** - This lever must be held during starting. Operation of the throttle trigger is prevented unless throttle trigger lockout lever is engaged.
3. **STOP SWITCH** - "SLIDE SWITCH" mounted on top of the Throttle Trigger Housing. Move switch FORWARD to RUN, BACK to STOP.
4. **THROTTLE TRIGGER** - Controls engine speed. Spring loaded to return to idle when released. During acceleration, press trigger gradually for best operating technique.
5. **DRIVE SHAFT ASSEMBLY** - Includes the Rear (right hand) Handle assembly, Gear Housing assembly, Front (loop, left hand) Handle assembly, metal drive shaft and Safety Decal.
6. **U-HANDLE** - Required for metal blade operation.
7. **HIP PAD** - Used to protect hip/leg and clothing when using U-handle equipped unit.
8. **SHOULDER HARNESS**- An adjustable strap that suspends the unit from the operator. Using the strap reduces operator fatigue.
9. **BLADE** - Circular blade for grass, weed or brush cutting applications. Harness, metal shield & U-handles required for blade operation.
10. **METAL BLADE SHIELD** - Required when unit is equipped with blades. Do not operate unit without shield.
11. **SPARK PLUG** - Provides spark to ignite fuel mixture.
12. **ARM REST** - Provides arm rest during operation and protects arm from the hot engine.
13. **SPARK ARRESTOR MUFFLER OR SPARK ARRESTOR MUFFLER WITH CATALYST** -The muffler or catalytic muffler controls exhaust noise and emission. The spark arrestor screen prevents hot, glowing particles of carbon from leaving the muffler. Keep exhaust area clear of flammable debris.
14. **FUEL TANK** - Contains fuel and fuel filter.
15. **RECOIL STARTER HANDLE** - Pull handle slowly until starter engages, then quickly and firmly. When engine starts, return handle slowly. DO NOT let handle snap back or damage to unit will occur.
16. **FUEL TANK CAP** - Covers and seals fuel tank opening.
17. **PURGE BULB** - Pumping purge bulb before starting engine draws fresh fuel from the fuel tank, purging air from the carburetor. Pump purge bulb until fuel is visible and flows freely in the clear fuel tank return line. Pump purge bulb an additional 4 or 5 times.
18. **AIR CLEANER** - Contains replaceable filter element.
19. **CHOKE** - The choke control is located at the rear of the air cleaner housing. Move choke lever to Cold Start (←) to close choke for cold start. Move choke lever to "Run" (|↑|) position to open choke.
20. **DECOMPRESSION BUTTON** - Push button to assist starting. Automatically resets after engine starts and runs.

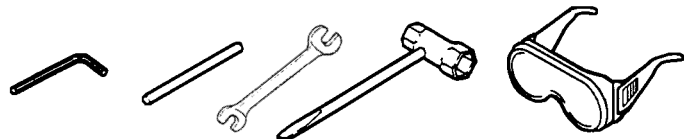
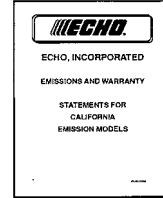
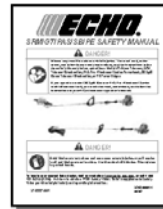
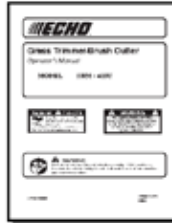


### CONTENTS

The ECHO product you purchased has been factory pre-assembled for your convenience. Due to packaging restrictions, shield installation and other assembly may be necessary.

After opening the carton, check for damage. Immediately notify your retailer or ECHO Dealer of damaged or missing parts. Use the contents list to check for missing parts.

- \_\_\_ 1- Power Head
- \_\_\_ 1- Drive Shaft Assembly
- \_\_\_ 1- Plastic Bag (co-pack)
  - \_\_\_ - 1, Operator's Manual
  - \_\_\_ - 1, Safety Manual
  - \_\_\_ - 1, Warranty Registration Card
  - \_\_\_ - 1, Limited Warranty Statement
  - \_\_\_ - 1, Emission Control Warranty Statement
  - \_\_\_ - 1, Tool Bag
    - \_\_\_ --1, wrench 17x19
    - \_\_\_ --1, locking tool
    - \_\_\_ --1, 8 x 10mm Open End Wrench
    - \_\_\_ --1, 4mm Hexagon Wrench
  - \_\_\_ - 1, Safety Glasses
  - \_\_\_ - 1, Echo Power Blend X™ 2-stroke oil sample
  - \_\_\_ - 1, Plastic Bag
    - \_\_\_ --3, 5mm x 10mm screws (shield mount)
    - \_\_\_ --2, 5mm x 8mm screws (bracket to shield)
    - \_\_\_ --4, 5mm nuts
    - \_\_\_ --4, 5mm lockwashers
    - \_\_\_ --1, metal shield
    - \_\_\_ --1, bracket
  - \_\_\_ - 1, Shoulder Harness w/hip pad
  - \_\_\_ - 10, Cotter Pins
  - \_\_\_ - 1, Blade



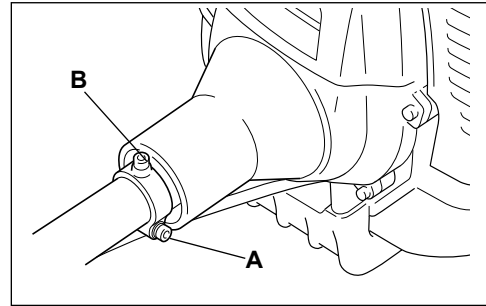
## ASSEMBLY

### DRIVE SHAFT/POWER HEAD

Tools Required: 4 mm Hex Wrench

Parts Required: Power Head, Drive Shaft Assembly

1. Stand power head upright on a level surface.
2. Loosen the drive shaft clamp bolt (A) at engine drive shaft clamp, and remove drive shaft locating bolt (B).
3. Remove protective plastic cap from end of drive shaft assembly. Carefully fit driveshaft assembly to engine making sure that inner drive shaft engages clutch mount.
4. Turn drive shaft housing until locating hole lines up with locating hole in clamp and install drive shaft locating bolt (B).



#### NOTE

Gear housing must be aligned properly with engine. Aligning center locating hole in driveshaft housing with center drive shaft bolt (B) provides correct alignment.

5. Tighten drive shaft clamp bolt (A) securely.



#### WARNING

Never start engine without driveshaft assembly installed. this could result in serious injury.

## BLADE INSTALLATION



#### WARNING

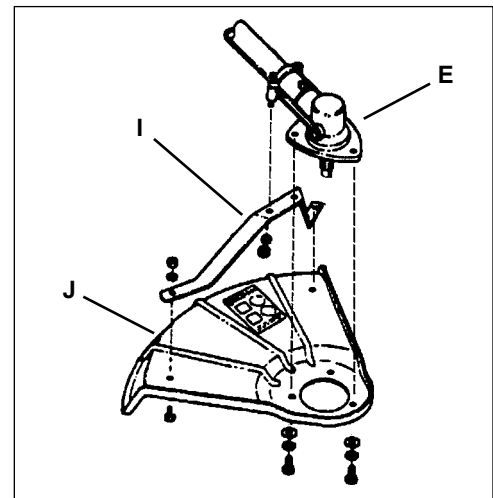
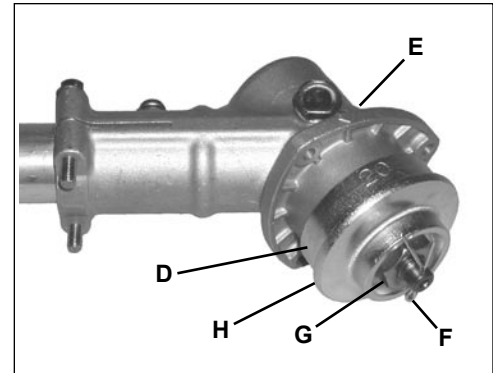
You must install the U-Handle and all Blade Conversion parts shown in the following instructions before operating this unit with a metal blade, otherwise serious injury may result.

### *Install Metal Shield*

Tools Required: 8 x 10 mm Open-end Wrench, Screwdriver, 17x19 mm Wrench, Locking Tool

Parts Required: Metal Shield, Shield Bracket,  
3 - 5 x 10 mm screws w/captivated flat and lock-washer, (metal shield to gear housing).  
2 - 5 x 8 mm screws, 2 - 5 mm nuts, 2 - 5 mm lock-washers, (bracket to shield).  
2 - 5 mm nuts, 2 - 5 mm lockwashers  
(bracket to gear housing)

1. Align hole in upper plate (D) with notch in gear housing (E), and insert locking tool to prevent splined shaft from turning. Arrow on gear housing flange points to notch location.
2. Remove split pin (F), L.H. blade nut (G), lower plate (H), and upper plate (D) from PTO shaft. Turn blade nut clockwise to remove.
3. Remove locking tool.
4. Loosely attach bracket (I) to shield (J) and attach shield to bottom of gear housing (E) with hardware provided.
5. Tighten all shield hardware.

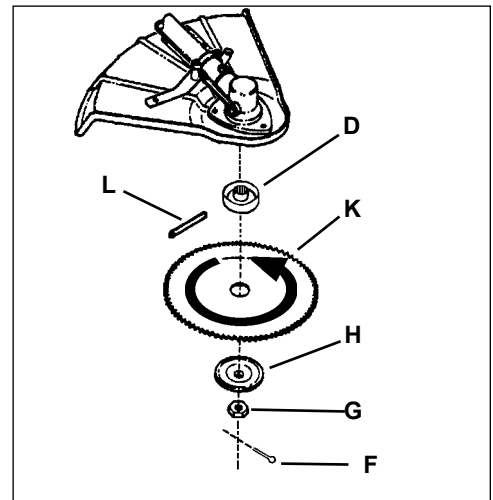


### **Install Blade**

*Tools Required:* Locking Tool, 17x19 mm Wrench.

*Parts Required:* Upper Plat, Lower Plate, 10 mm Nut w/L.H. threads, 2 x 25 mm Cotter Pin, Blade.

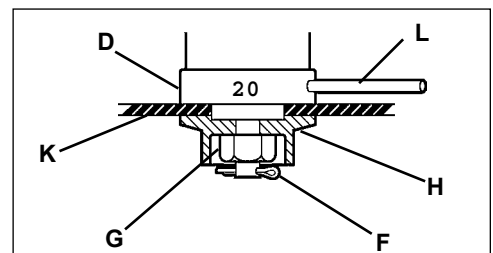
1. Install upper plate (D) on splined PTO shaft, pilot side down. Blade installation requires Upper Plate (D).
2. Install Blade (K) on upper plate pilot. Blades must be installed so that rotation arrow on blade matches rotation of unit: teeth toward direction of rotation (See debris shield decal). Secure blade with Lower Plate (H), and 10 mm L.H. nut (G). Turn nut counter-clockwise on PTO shaft to tighten.
3. Align hole in upper plate with notch in gear housing, and insert Locking Tool (L) to prevent splined shaft from turning. Arrow on gear housing points to notch. Tighten 10 mm nut securely.
4. Insert Cotter Pin (F) in hole in PTO shaft, and bend pin legs around shaft counterclockwise to retain 10 mm nut.



#### **IMPORTANT**

Never reuse a cotter pin - install a new cotter pin each time a blade is installed or replaced.

5. Remove locking tool.

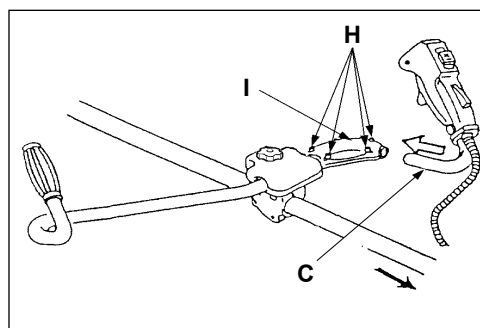
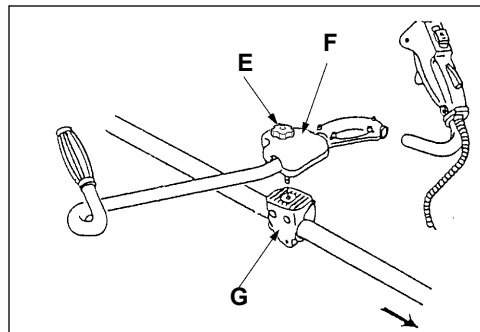
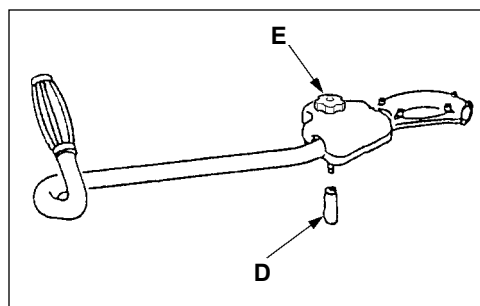
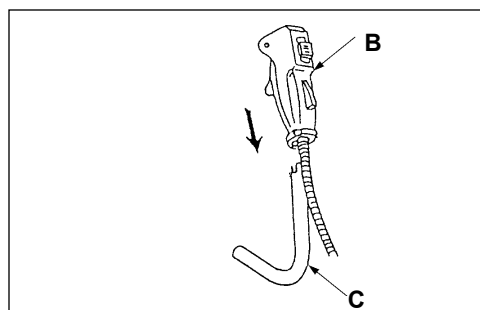
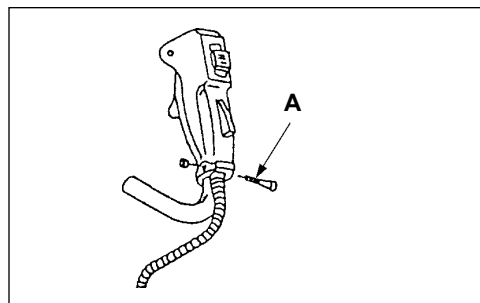


## U-HANDLE INSTALLATION

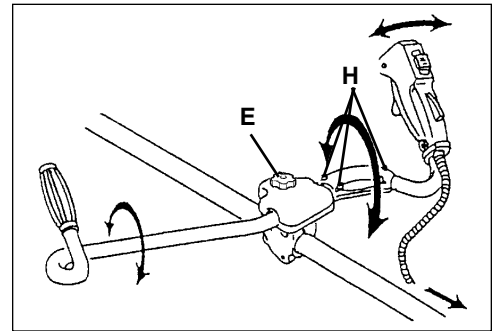
*Tools Required:* 17 & 19 mm wrench, 4 mm hex wrench

*Parts Required:* U-Handle, Clamp w/screws, 8 mm x 55 mm hex bolt,  
8 mm flat washer

1. Remove assembling bolt (A) from right hand grip. Install right hand grip (B) onto right hand U-handle (C) until bolt hole in U-handle is visible through bolt hole in bottom of grip. Grip should not rotate on handle.
2. Install assembling bolt to secure grip onto U-handle.
3. Remove bolt retainer tube (D) from end of handle assembling bolt (E).
4. Install handle assembling bracket (upper) (F) in handle assembling bracket (lower) (G) and secure handle by tightening handle assembling bolt (E) loosely.
5. Loosen 4 right handle assembling bolts (H) and insert right hand U-handle (C) into right hand assembling bracket (I). (toward direction of arrow ←).



6. Secure the right hand U-handle by tightening 4 right handle assembling bolts (H) loosely.
7. Adjust handles for comfortable operation and tighten handle assembling bolt (E) and 4 right handle assembling bolts (H).

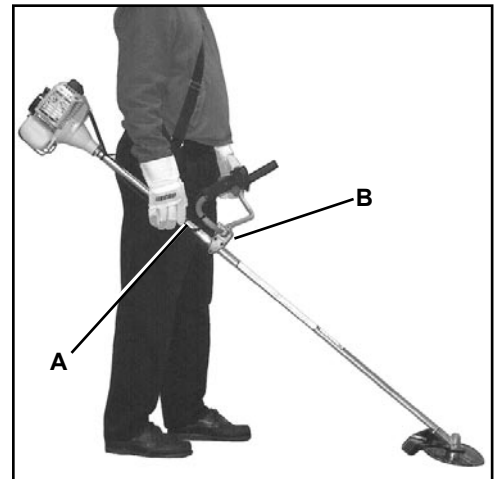


8. Route throttle linkage and ignition lead assembly along shaft and clip as shown.



## BALANCE AND ADJUST UNIT

1. Loosen harness clamp screw.
2. Put on harness and attach unit to harness.
3. Slide harness clamp up (A) or down until unit balances with head approximately 50-75 mm (2 -3 in.) from the ground.
4. Tighten harness clamp screw.
5. Loosen upper U-Handle clamp screws (B), and position U-Handle for comfortable operation.
6. Tighten U-Handle clamp screws and 8 mm clamp bolt securely.

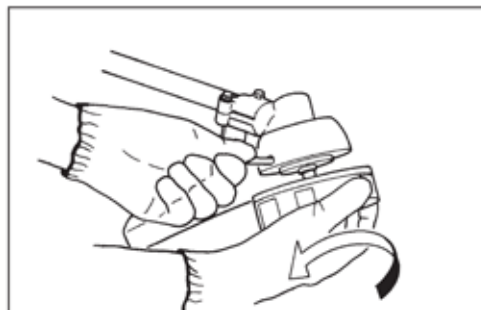


## OPTIONAL NYLON HEAD INSTALLATION

*Tools Required:* Locking Tool

*Parts Required:* Nylon Line Head.

1. Align hole in upper plate with notch in gear housing, and insert locking tool to prevent splined shaft from turning.
  2. Thread line head onto PTO shaft by turning it counter-clockwise until head is tight against upper plate.
  3. Remove locking tool.
- Read the Operator's Manual carefully. Be thoroughly familiar with the controls and proper use of the trimmer.
  - Know how to stop the unit and disengage the controls.
  - Never allow children to operate the trimmer.
  - Never allow adults to use the trimmer unless they have received proper instructions. Be sure the operator is properly attired and wears the type of foot, leg, head, eye and ear protection recommended both in your ECHO Operator's Manual and by your ECHO Servicing Dealer.
  - Always wear eye protection that conforms to ANSI Z 87.1-2000.1. Read the Operator's Manual carefully. Be thoroughly familiar with the controls and proper use of the trimmer. Know how to stop the unit and disengage the controls.

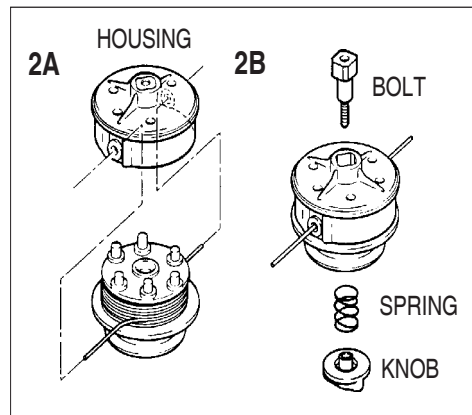
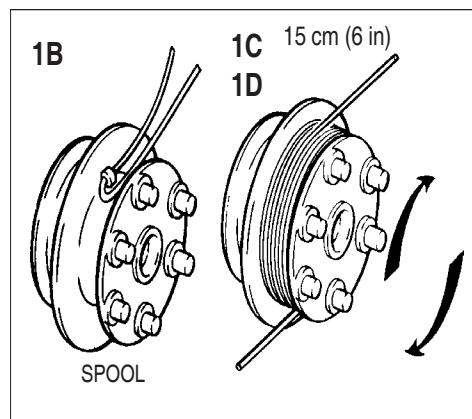


### WARNING

Grass/weed trimmers can throw gravel, stone, wood chips, glass, and plastic or metal objects. The debris shield behind the trimmer head stops much of the debris, but cannot prevent the operator from being struck by some debris. Read the rules for safe operation in the operator's manual that you received with your echo trimmer. Also, follow all instructions in this instruction sheet.

### 1. REPLACING LINE

- A. Remove spool by turning knob clockwise, "right", and separating parts.
- B. Thread a 6 m (20 feet) length of 2.4 mm (0.095 in) or 2.7 mm (0.105 in) ECHO line through hole in spool so that ends are the same length.
- C. Wind both ends of line tightly and evenly clockwise (see arrows on spool), and wind from side to side without twisting the lines.
- D. Secure ends of line temporarily with about 15 cm (6 in) extending out.



## 2. REPLACING SPOOL

**NOTE**

Keep line tight on spool.

- A. Snap spool into housing while pulling line through eyelets with about 15 cm (6 in) extending out.

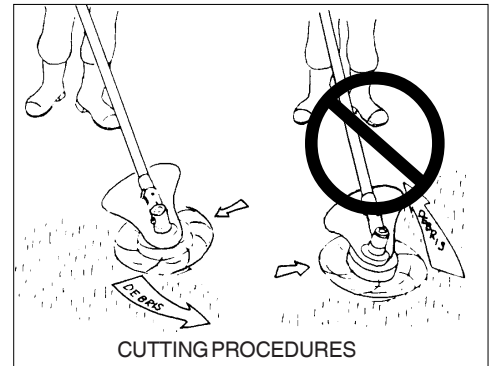
**CAUTION**

Knob tightens counterclockwise, “left”.

- B. Fasten spool to housing with shaft bolt, spring, and knob.

## OPERATING INSTRUCTIONS NYLON LINE

1. Always use the end of the line for cutting. Forcing the cutter head too close to the work will result in reduced efficiency and broken line.
2. Maintain the line at the recommended length of 12.5 to 15 cm (5 to 6 in). A longer line will reduce engine speed, a shorter line may result in engine damage.
3. The trimmer head rotates counterclockwise. Always cut with the head tilted to the right to deflect debris away from the operator.
4. Always observe the SAFETY RULES on Page 5 when using the unit.



## OPERATION



### WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.



### WARNING

Engine exhaust IS HOT, and contains Carbon Monoxide (CO), a poison gas. Breathing CO can cause unconsciousness, serious injury, or death. Exhaust can cause serious burns. ALWAYS position unit so that exhaust is directed away from your face and body.



### WARNING

Operation of this equipment may create sparks that can start fires around dry vegetation. This unit is equipped with a spark arrestor and a spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

## BLADE SELECTION



### WARNING

The type of Blade used **MUST** be matched to the type and size of material cut. An improper or dull blade can cause serious personal injury. Blades **MUST** be sharp. Dull blades increase the chance of kick-out and injury to yourself and bystanders.

SRM/PAS/SB BLADE SET-UP GUIDE\*

TO USE THESE BLADES →		Pro Maxi-Cut Grass/Weed Plastic Cutters	Rigid Plastic Tri-Cut Grass/Weed Blade	Metal Tri-Cut/8 Tooth Grass/Weed Blade	Metal 80T Brush Blade Metal 22T Clearing Saw Blad
<b>→</b> You must install these parts! <b>→</b>	Handle	Loop Handle, w/or w/o Barrier Bar	Loop Handle w/Barrier Bar, or U-Handle	Loop Handle w/Barrier Bar, or U-Handle	U-Handle
	Debris Shield	Metal Shield	Metal Shield	Metal Shield	Metal Shield
	Harness	Shoulder Harness	Shoulder Harness	Shoulder Harness	Shoulder Harness****
	Blade Mounting Hardware	Upper Plate & Flat Washer	Upper Plate & Glide Cup	Upper/Lower Blade Plates**	Upper/Lower Blade Plates**
Hex Nut		Hex Nut	Hex Nut	Hex Nut	
New Cotter Pin***		New Cotter Pin***	New Cotter Pin***	New Cotter Pin***	

\* WARNING! DO NOT INSTALL BLADES ON GT (CURVED SHAFT) MODEL TRIMMERS

\*\* Arbor diameter of Upper Blade Plate must match arbor diameter of metal blades.

\*\*\* New cotter pin required each time blade is installed.

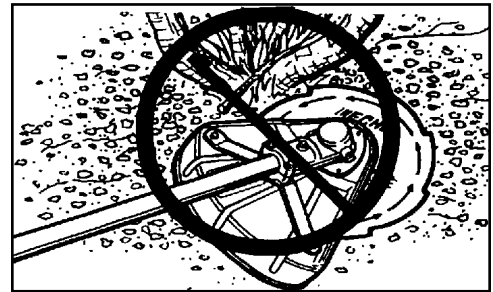
\*\*\*\* Brushcutters over 16.5 lbs (7.5 kg) dry weight (weight w/o fuel) require a double shoulder harness



**Plastic/Nylon Grass/Weed Blades** may be used where ever the nylon line head is used. DO NOT use this blade for heavy weeds or brush!



**8 Tooth Weed/Grass Blade** is designed for grass, garden debris and thick weeds. DO NOT use this blade for brush or heavy woody growth, 19 mm (3/4 in.) diameter or larger.



**80 Tooth Brush Blade** is designed for cutting brush and woody growth up to 13mm (3 in.) diameter.

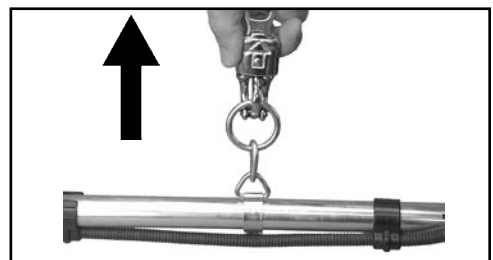


**22 Tooth Clearing Blade** is designed for dense thickets and saplings up to 64 mm (3 in.) diameter.

**Use Shoulder/Waist Harness** Use of the Shoulder/Waist Harness is recommended for ALL Trimmer/Brush Cutter use, not just Blade operation. The Shoulder/Waist Harness when used in a trimming operation with nylon line head suspends the trimmer from the operator's shoulder and reduces operator fatigue.



During blade operation, the same fatigue reduction is achieved. Safety to the operator is also enhanced by reducing the possibility of blade contact with the operator's hands and feet by restricting trimmer movement



**WARNING**

In case of emergency, pull the quick release latch to disconnect the trimmer from the harness.

## FUEL

**NOTICE:** Use of unmixed, improperly mixed, or fuel older than 90 days, (stale fuel), may cause hard starting, poor performance, or severe engine damage and void the product warranty. Read and follow instructions in the Storage section of this manual.



### WARNING

Alternative fuels, such as E-20 (20% ethanol), E-85 (85% ethanol) or any fuels not meeting ECHO requirements are **NOT** approved for use in ECHO 2-stroke gasoline engines. Use of alternative fuels may cause performance problems, loss of power, overheating, fuel vapor lock, and unintended machine operation, including, but not limited to, improper clutch engagement. Alternative fuels may also cause premature deterioration of fuel lines, gaskets, carburetors and other engine components.

### *Fuel Requirements*

**Gasoline** - Use 89 Octane [R+M/2] (mid grade or higher) gasoline known to be good quality. Gasoline may contain up to 10% Ethanol (grain alcohol) or 15% MTBE (methyl tertiary-butyl ether). Gasoline containing methanol (wood alcohol) is **NOT** approved.

**Two Stroke Oil** - A two-stroke engine oil meeting ISO-L-EGD (ISO/CD 13738) and J.A.S.O. FC/FD Standards must be used. Echo brand premium Power Blend X™ Universal 2-Stroke Oil meets these standards. Engine problems due to inadequate lubrication caused by failure to use an ISO-L-EGD (ISO/CD 13738) and J.A.S.O. FC/FD certified oil, such as Echo premium Power Blend X™, will void the two-stroke engine warranty.

### IMPORTANT

Echo premium Power Blend X™ Universal 2-Stroke Oil may be mixed at 50:1 ratio for application in all Echo engines sold in the past regardless of ratio specified in those manuals.

## *Handling Fuel*



### DANGER

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling or serious personal injury may result.

- Use an approved fuel container.
- DO NOT smoke near fuel.
- DO NOT allow flames or sparks near fuel.
- Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.
- NEVER refuel a unit when the engine is HOT or RUNNING!
- DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks outdoors over bare ground.
- DO NOT overfill fuel tank. Wipe up spills immediately.
- Securely tighten fuel tank cap and close fuel container after refueling.
- Inspect for fuel leakage. If fuel leakage is found, do not start or operate unit until leakage is repaired.
- Move at least 3m (10 ft.) from refueling location before starting the engine.

**Mixing Instructions**

1. Fill an approved fuel container with half of the required amount of gasoline.
2. Add the proper amount of 2-stroke oil to gasoline.
3. Close container and shake to mix oil with gasoline.
4. Add remaining gasoline, close fuel container, and remix.

**IMPORTANT**

Spilled fuel is a leading cause of hydrocarbon emissions. Some states may require the use of automatic fuel shut-off containers to reduce fuel spillage.

**After use**

- DO NOT store a unit with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.

**Storage** - Fuel storage laws vary by locality. Contact your local government for the laws affecting your area. As a precaution, store fuel in an approved, airtight container. Store in a well-ventilated, unoccupied building, away from sparks and flames.

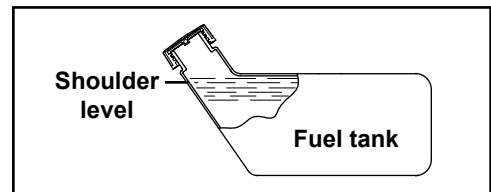
**IMPORTANT**

Stored fuel ages. Do not mix more fuel than you expect to use in thirty (30) days, ninety (90) days when a fuel stabilizer is added.

**IMPORTANT**

Stored two-stroke fuel may separate. ALWAYS shake fuel container thoroughly before each use.

<b>Fuel to Oil Mix - 50:1 Ratio</b>			
<b>U.S.</b>		<b>METRIC</b>	
<b>GAS</b>	<b>OIL</b>	<b>GAS</b>	<b>OIL</b>
<b>Gallons</b>	<b>Fl. oz.</b>	<b>Liter</b>	<b>cc.</b>
1	2.6	4	80
2	5.2	8	160
5	13	20	400




## STARTING COLD ENGINE



### WARNING

When engine is started, confirm that there is not any abnormal vibration or sound. If there is abnormal vibration or sound, ask your DEALER to repair. After refueling tighten fuel cap firmly and check for leakage. In case of fuel leakage repair before starting operation since there is a danger of fire.

1. *Stop Switch*  
Move stop switch button (A) forward away from the STOP position.
2. *Choke*  
Move choke lever (B) to Cold Start Position (I). 
3. *Purge Bulb*  
Pump purge bulb (C) until fuel is visible and flows freely in the clear fuel tank return line. Pump bulb an additional 4 or 5 times.
4. Press the decompression device (E).
5. *Recoil Starter*  
Lay the unit on a flat area and keep movable attachment parts clear of all obstacles. Hold unit firmly, and rapidly pull recoil starter handle/rope (D) until engine fires (or maximum five [5] pulls).

### NOTE

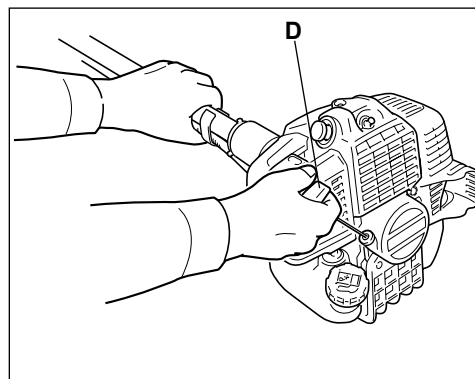
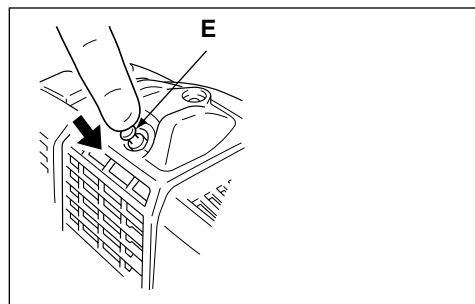
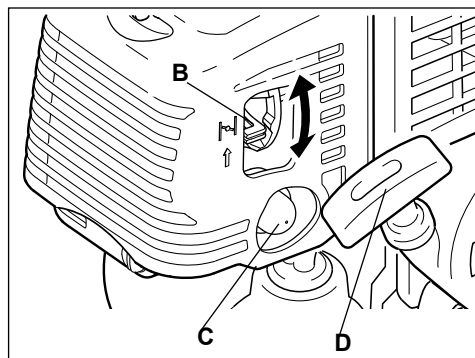
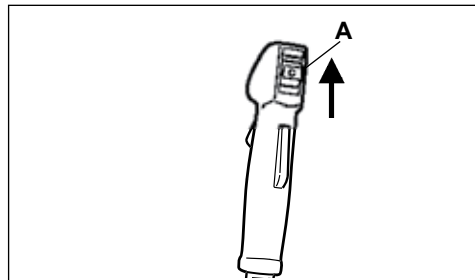
Starter handle : Use short pulls - only 1/2 - 2/3 of starter rope for starting. Do not let starter rope snap back in. Always hold the unit firmly.

6. *Choke*  
After engine fires (or 5 pulls), move choke lever back to Run (R) position. Pull recoil starter handle/rope until engine starts and runs. Allow unit to warm up at idle for several minutes.

### NOTE

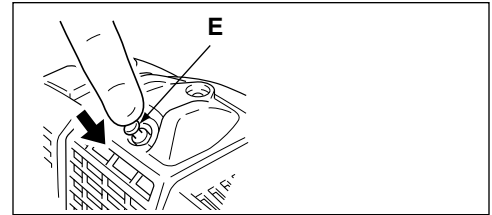
If engine does not start with choke in "Run" position after 5 pulls, repeat instructions 2 - 5.

7. *Throttle Trigger*  
After engine warm-up, gradually depress throttle trigger to increase engine RPM to operating speed.

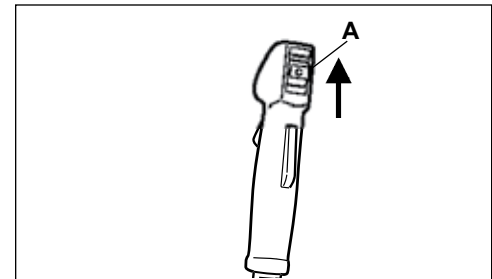


## STARTING WARM ENGINE

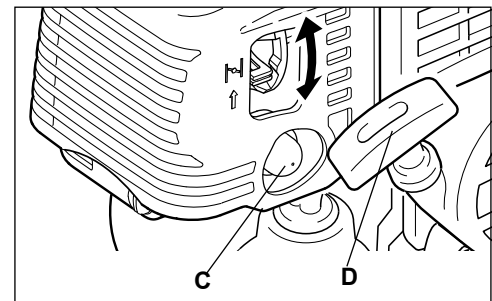
1. Press the decompression device (E).



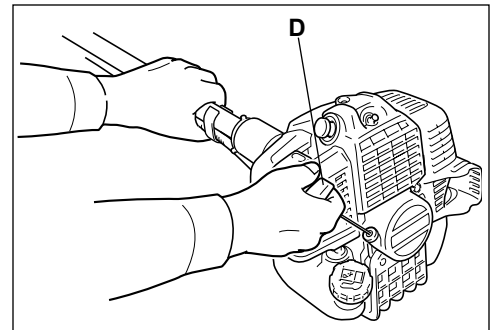
2. *Stop Switch*  
Move stop switch button (A) forward away from the STOP position.



3. *Purge Bulb*  
Pump purge bulb (C) until fuel is visible in the "Clear" fuel return line.



4. *Recoil Starter*  
Lay the unit on a flat area and keep movable attachment parts clear of all obstacles. Hold unit firmly and rapidly pull the recoil starter handle (D) until the engine fires.

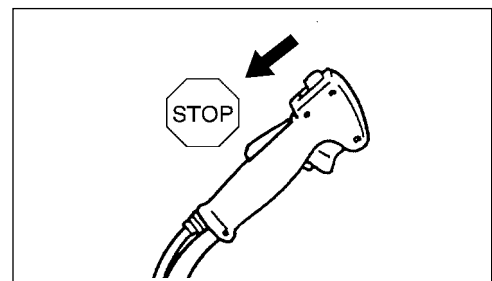


### NOTE

If engine does not start after 5 pulls, use Cold Start Procedure.

## STOPPING ENGINE

1. Release throttle trigger and allow to run at an idle speed.
2. Slide ignition switch to "STOP" position.



## MAINTENANCE



### WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit. Allow unit to cool before performing service. Wear gloves to protect hands from sharp edges and hot surfaces.

Your ECHO trimmer is designed to provide many hours of trouble free service. Regular scheduled maintenance will help your trimmer achieve that goal. If you are unsure or are not equipped with the necessary tools, you may want to take your unit to an ECHO Service Dealer for maintenance. To help you decide whether you want to DO-IT-YOURSELF or have the ECHO Dealer do it, each maintenance task has been graded. If the task is not listed, see your ECHO Dealer for repairs.

### SKILL LEVELS

- Level 1 = Easy to do. Common tools may be required.
- Level 2 = Moderate difficulty. Some specialized tools may be required.

ECHO offers **REPOWER™** Maintenance Kits and Parts to make your maintenance job easier.

### MAINTENANCE INTERVALS

COMPONENT/ SYSTEM	MAINTENANCE PROCEDURE	REQ'D SKILL LEVEL	DAILY OR BEFORE USE	EVERY REFUEL	3 MONTHS OR 90 HOURS	YEARLY 600 HOURS
Air Filter	Inspect/Clean	1	I / C *		R *	
Choke Shutter	Inspect/Clean	1	I / C			
Fuel Filter	Inspect/Replace	1			I *	I / R *
Fuel Cap Gasket	Inspect/Replace	1			I *	R
Fuel System	Inspect/Replace	1	I (2) *	I (2) *		
Spark Plug	Inspect/Clean	1			I / C / R *	
Cooling System	Inspect/Clean	2	I / C			
Muffler Spark Arrestor	Inspect/Clean/Replace	2			I / C / R *	
Cylinder Exhaust Port	Inspect/Clean/Decarbon	2			I / C	
Gear Housing	Grease	2			I (1)	
Recoil Starter Rope	Inspect/Clean	1	I / C *			
Screws/Nuts/Bolts	Inspect/Tighten/Replace	1	I *			

**MAINTENANCE PROCEDURE LETTER CODES: I = INSPECT, R = REPLACE, C = CLEAN**

**IMPORTANT NOTE** - Time intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance.

#### **MAINTENANCE PROCEDURE NOTES:**

- (1) Apply POWER BLENDX™ every 50 hours of use.
- (2) Low evaporative fuel tanks DO NOT require regular maintenance to maintain emission integrity.
- \* Replacement is recommended based on the finding of damage or wear during inspection.

## AIR FILTER

### Level 1.

*Tools required:* 25 - 50mm (1 - 2 in.) cleaning brush

*Parts required:* REPOWER™ Tune-Up Kit

#### NOTE

Always brush dirt and debris away from air cleaner area prior to cleaning air filter.

1. Brush dirt off air cleaner area. Keep dirt away from engine and air intake grid.
2. Remove air filter cover (A). Brush dirt from inside cover and away from edges of air filter.
3. Check air filter seal for tight fit with air filter case.
4. Remove air filter (B) from case. Use care to prevent dirt and debris from falling into air filter case.
5. Inspect filter element and seal. Replace filter if any of these problems are present:
  - Air filter seal does not fit tightly against case
  - Air filter seal is distorted, worn, or damaged
  - Air filter element has holes or other damage
  - Air filter element is saturated with dirt
  - Air filter element is soaked with fuel mix
6. If air filter is in good condition and can be cleaned and reused, lightly brush debris from air filter element, or blow filter element clean using low pressure (40 psi or less) compressed air directed at inside of filter.

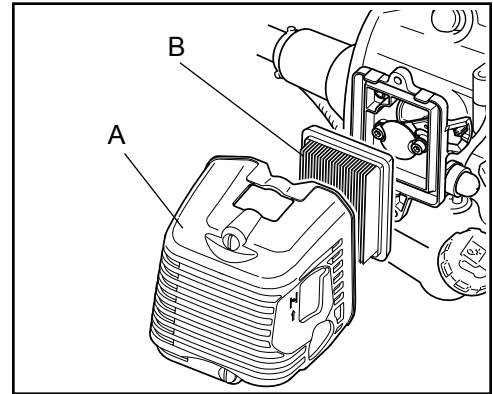
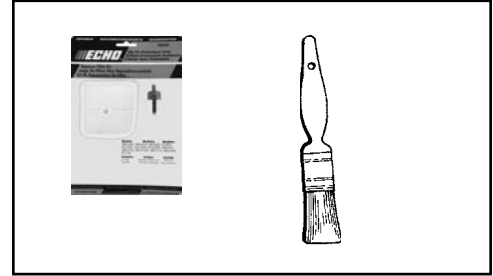
#### IMPORTANT

When using compressed air, always direct air stream at inside surface of filter so dust and debris will be blown out of filter. Keep air nozzle 6 - 8 inches away from filter to prevent damage to filter.

7. Install air filter in case, and replace cover.

#### NOTICE

Actual replacement interval for air filter depends on operating conditions. Operation in dustier applications requires more frequent cleaning and replacement. Continued operation with a damaged or excessively dirty filter will allow dirt and debris to enter engine, and result in poor performance, rapid engine wear, and premature engine failure.



## FUEL FILTER

### Level 1.

*Tools required:* 200- 250 mm (8 - 10 in.) length of wire with one end bent into a hook, clean rag, funnel, and an approved fuel container.

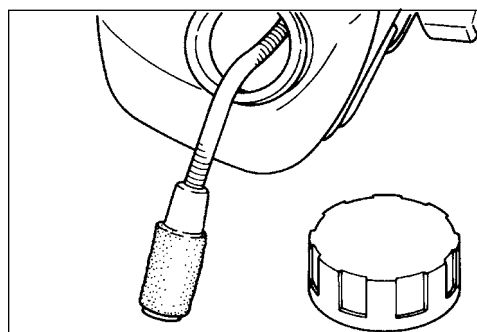
*Parts required:* REPOWER™ Tune-Up Kit



### DANGER

Fuel is VERY flammable. Use extreme care when mixing, storing or handling.

1. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.
2. Use the “fuel line hook” to pull the fuel line and filter from the tank.
3. Remove the filter from the line and install the new filter.



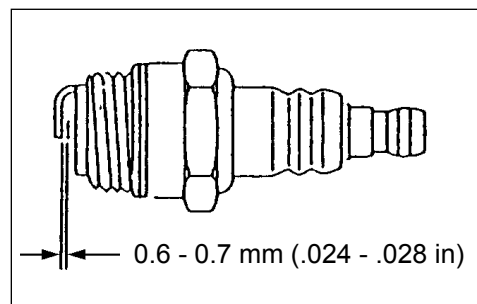
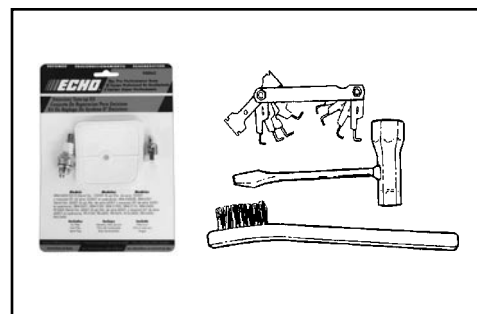
## SPARK PLUG

### Level 2.

*Tools Required:* T-wrench, feeler gauge, soft metal brush.

*Parts Required:* REPOWER™ Tune-Up Kit

1. Remove spark plug and check for fouling, worn and rounded center electrode.
2. Clean the plug or replace with a new one. DO NOT sand blast to clean. Remaining sand will damage engine.
3. Adjust spark plug gap by bending outer electrode.
4. Install Spark Plug, and tighten to 150-170 kgf • cm (130-150 in. • lbf).





## COOLING SYSTEM

### Level 2.

**Tools required:** Air compressor and safety nozzle, or: 4 mm Hex wrench, 25 - 50 mm (1 - 2 in.) cleaning brush.

**Parts Required:** None.

### IMPORTANT

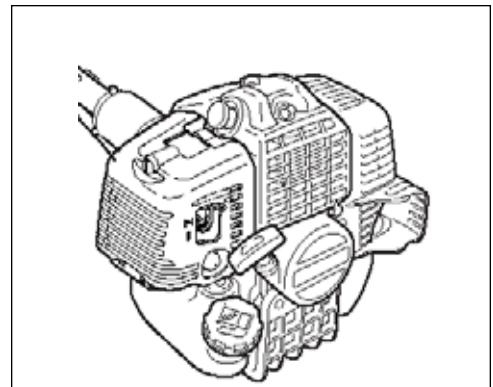
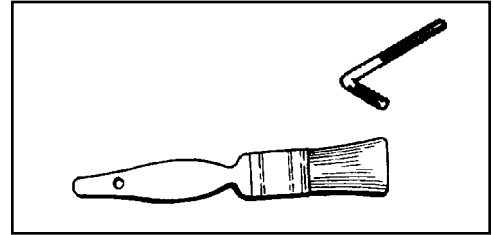
To maintain proper engine operating temperatures, cooling air must pass freely through the cylinder fin area. This flow of air carries combustion heat away from the engine.

Overheating and engine seizure can occur when:

- Air intakes are blocked, preventing cooling air from reaching the cylinder.
- Dust and debris build-up on the outside of the cylinder. This build-up insulates the engine and prevents the heat from leaving.

Removal of cooling passage blockages and cleaning of cooling fins is considered "Normal Maintenance." Any failure attributed to lack of maintenance is not warranted.

1. Periodically blow dirt and debris off cooling fins with a compressor and safety nozzle, or;
2. Remove engine and muffler covers, and brush off dirt and debris using the medium bristle brush.



## EXHAUST SYSTEM

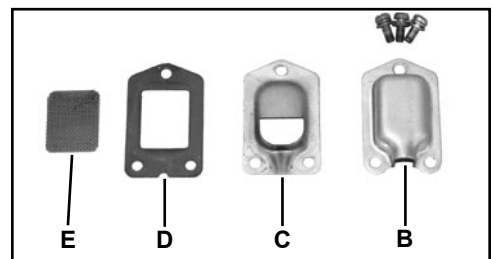
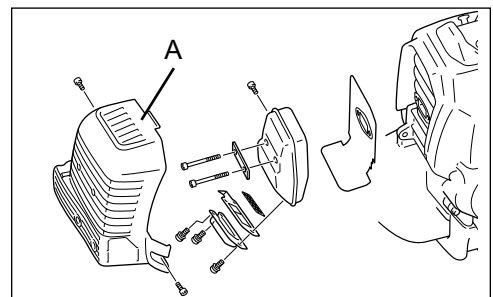
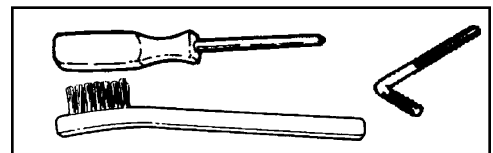
### Spark Arrestor Screen

#### Level 2.

**Tools Required:** Cross Head Screwdriver, Soft Metal Brush, 4 mm Hex Wrench

**Parts Required:** Spark Arrestor Screen, Gasket

1. Remove muffler cover (A).
2. Place piston at Top Dead Center (TDC) to prevent carbon/dirt from entering cylinder.
3. Remove spark arrestor screen cover (B), screen holder (C), gasket (D), and screen (E), from muffler body.
4. Clean carbon deposits from muffler components.
5. Replace screen if it is cracked, plugged, or has holes burned through.
6. Assemble components in reverse order.



## *Exhaust Port Cleaning*

### *Level 2.*

Tools required: 4 & 5 mm Hex Wrench, Wood or plastic scraper

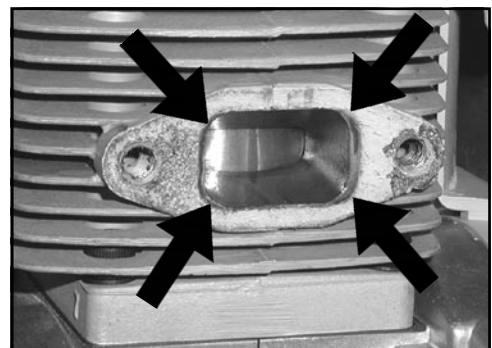
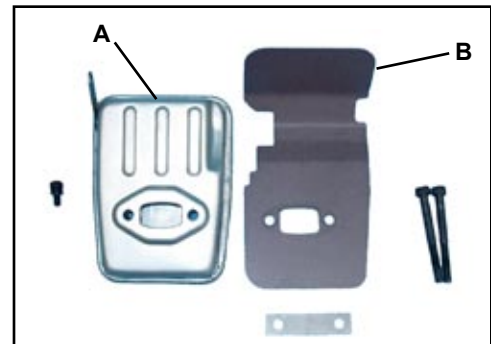
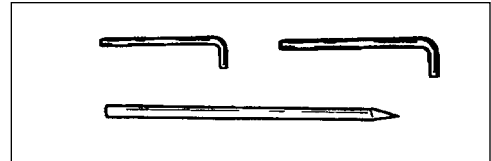
Parts Required: As needed: Heat Shield

1. Remove spark plug lead from spark plug, and remove muffler cover (2 screws).
2. Place piston at top dead center. Remove muffler (A) and heat shield (B).
3. Use a wood or plastic scraping tool to clean deposits from cylinder exhaust port.

#### **IMPORTANT**

Never use a metal tool to scrape carbon from the exhaust port. Do not scratch the cylinder or piston when cleaning the exhaust port. Do not allow carbon particles to enter the cylinder.

4. Inspect heat shield, and replace if damaged.
5. Install heat shield and muffler.
6. Tighten muffler mounting bolts (or nuts) to 95-130 in•lbf (110-150 kgf•cm).
7. Attach spark plug lead and install muffler cover.
8. Start engine, and warm to operating temperature.
9. Stop engine, and re-tighten mounting bolts (or nuts) to specifications.



## CARBURETOR ADJUSTMENT

### *Engine Break-In*

New engines must be operated a minimum of two tanks of fuel before carburetor adjustments can be made. During the break-in period your engine performance will increase and exhaust emissions will stabilize. Idle speed can be adjusted as required.

### *High Altitude Operation*

This engine has been factory adjusted to maintain satisfactory starting, emission, and durability performance up to 1,100 feet mean sea level (MSL) (96.0 kPa and below). To maintain proper engine operation and emission compliance above 1,100 feet MSL the carburetor may need to be adjusted by an authorized ECHO service dealer.

#### **IMPORTANT**

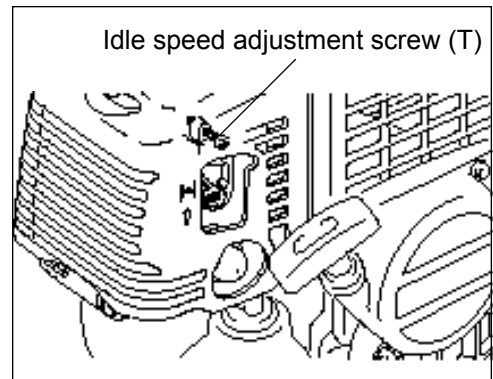
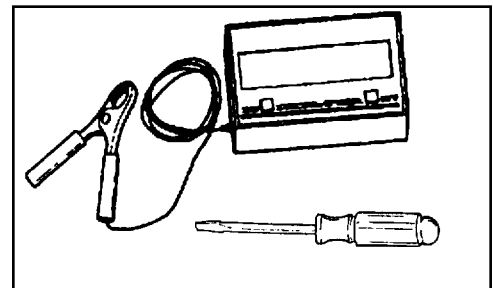
If the engine is adjusted for operation *above* 1,100 feet MSL, the carburetor must be re-adjusted when operating the engine *below* 1,100 feet MSL, otherwise severe engine damage can result.

#### **Level 2.**

*Tools required:* Screwdriver, Tachometer (ECHO P/N 99051130017).

*Parts required:* None.

1. Before adjusting carburetor clean or replace air filter and muffler, "Spark Arrestor Screen".
2. Make sure the cutting attachment such as hedge clipper blades or circular saw are properly adjusted. Trimmer line should be extended to cut-off knife.
3. Start engine and run several minutes to bring to operating temperature. Flash choke twice during warm-up to clear any air from the fuel system.
4. Idle Speed Adjustment
  - Start engine, turn "idle" speed adjustment screw clockwise (CW) until the cutting attachment begins to turn, then turn screw out counterclockwise (CCW) until attachment stops turning. Turn screw out, CCW, an additional 1/4 turn.



#### **WARNING**

Cutting attachment must not turn or move when unit is idling.

#### **CAUTION**

When starting, idling adjustment speed should be adjusted not to rotate the cutting attachment. Correct idle speed is adjusted 2300 to 2700 r/min. Or 1/4 turn CCW from the point the cutting attachment stops moving. When there is some trouble with the carburetor, refer to your dealer.

## LUBRICATION

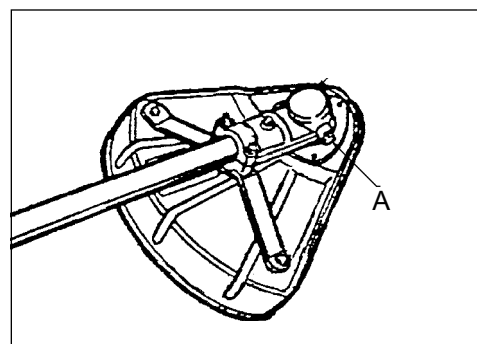
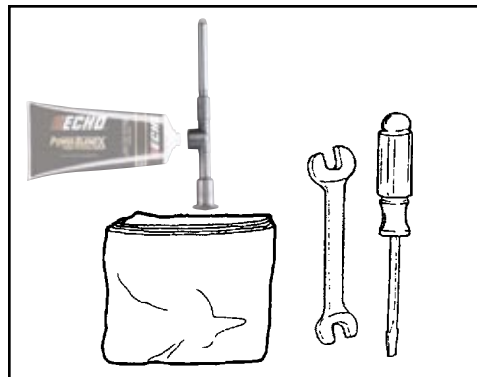
### Level 1.

*Tools Required:* 8 & 13 mm Open End Wrench, Screwdriver, Clean Rag.

*Parts Required:* POWER BLENDX™ 8 oz. (P/N 91014) or Lithium Base Grease.

### *Gear Housing*

1. Clean all loose debris from gear box.
2. Remove plug (A) and check level of grease. Grease should fill gear case to bottom of grease plug hole.
3. Add grease if necessary using manual grease gun or squeeze-type tube. Do not use high pressure grease gun. DO NOT over-fill.



## SHARPENING METAL BLADES

Three styles of metal blades are approved for use on the ECHO Brush Cutter. The 8-tooth blade can be sharpened during normal maintenance. The clearing blade and 80 tooth blade require professional service.

Before sharpening, CLOSELY inspect blade for cracks (look at the bottom of each tooth and the center mounting hole closely), missing teeth and bending. If ANY of these problems are discovered, replace the blade.

When sharpening a blade, always remove the same amount of materials from each tooth to maintain balance. A blade that is not balanced will cause unsafe handling due to vibration and can result in blade failure.

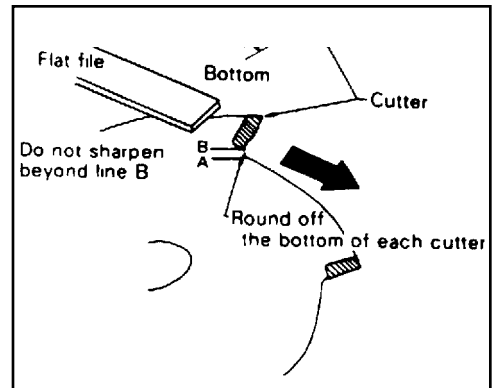
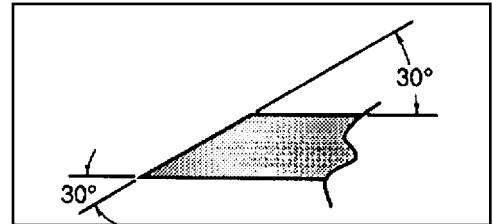
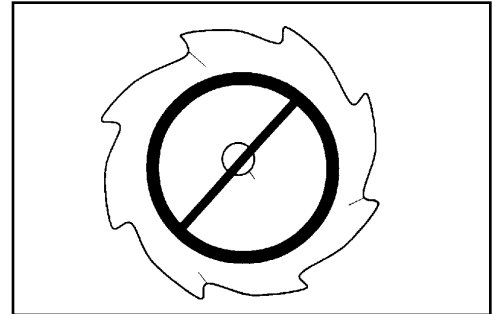
*Tool required:* Flat file (preferred). Electric grinder if special care is used. Round (rat tail) file for gullet (radius).

1. File each tooth at a 30 degree angle a specific number of times, eg. 4 strokes per tooth. Work your way around the blade until all teeth are sharp.
2. DO NOT file the 'gullet' (radius) of the tooth with the flat file. The radius must remain. A sharp corner will lead to a crack and blade failure.

### IMPORTANT

If an electric grinder is used, use care not to overheat teeth, do not allow tips/tooth to glow red or turn blue. DO NOT place blade in cooling water. This will change the temper of the blade and could result in blade failure.

3. After sharpening teeth, check each tooth radius for evidence of a square (sharp) corner. Use the round (rat tail) file to renew the radius.



## TROUBLESHOOTING

ENGINE PROBLEM TROUBLESHOOTING CHART				
Problem	Check	Status	Cause	Remedy
Engine cranks - starts hard/ doesn't start	Fuel at carburetor	No fuel at carburetor	Fuel strainer clogged Fuel line clogged Carburetor	Clean or replace Clean or replace See your Echo dealer
	Fuel at cylinder	No fuel at cylinder	Carburetor	See your Echo dealer
		Muffler wet with fuel	Fuel Mixture too rich	Open choke Clean/replace air filter Adjust carburetor See your Echo dealer
	Spark at end of plug wire	No spark	Stop switch off Electrical problem Interlock switch	Turn switch to ON See your Echo dealer See your Echo dealer
	Spark at plug	No spark	Spark gap incorrect Covered with carbon Fouled with fuel Plug defective	Adjust to .65mm (0.026 in.) Clean or replace Clean or replace Replace plug
Engine runs, but dies or does not accelerate properly	Air filter	Air filter dirty	Normal wear	Clean or replace
	Fuel filter	Fuel filter dirty	Contaminants/residues in fuel	Replace
	Fuel vent	Fuel vent plugged	Contaminants/residues in fuel	Clean or replace
	Spark Plug	Plug dirty/worn	Normal wear	Clean and adjust or replace
	Carburetor	Improper adjustment	Vibration	Adjust
	Cooling System	Cooling system dirty/plugged	Extended operation in dirty/dusty locations	Clean
	Spark Arrestor Screen	Spark arrestor screen plugged	Normal wear	Replace
Engine does not crank	N/A	N/A	Internal engine problem	See your Echo dealer



### **DANGER**

Fuel vapors are **extremely** flammable and may cause fire and/or explosion. **Never** test for ignition spark by grounding spark plug near cylinder plug hole, otherwise serious personal injury may result.

## STORAGE



### WARNING

During operation the muffler or catalytic muffler and surrounding cover become hot. Always keep exhaust area clear of flammable debris during transportation or when storing, otherwise serious property damage or personal injury may result.

### *Long Term Storage (over 30 days)*

Do not store your unit for a prolonged period of time (30 days or longer) without performing protective storage maintenance which includes the following:

1. Store unit in a dry, dust free place, out of the reach of children.



### DANGER

Do not store in enclosure where fuel fumes may accumulate or reach an open flame or spark.

2. Place the stop switch in the "STOP" position.
3. Remove accumulation of grease, oil, dirt and debris from exterior of unit.
4. Perform all periodic lubrication and services that are required.
5. Tighten all the screws and nuts.
6. **Drain** the fuel tank **completely** and pull the recoil starter handle several times to remove fuel from the carburetor.
7. Remove the spark plug and pour 7 cc (1/4 oz.) of fresh, clean, two-stroke engine oil into the cylinder through the spark plug hole.
  - A. Place a clean cloth over the spark plug hole.
  - B. Pull the recoil starter handle 2-3 times to distribute the oil inside the engine.
  - C. Observe the piston location through the spark plug hole. Pull the recoil handle slowly until the piston reaches the top of its travel and leave it there.
8. Install the spark plug (do not connect ignition cable).

## SPECIFICATIONS

<b>MODEL</b> -----	<b>SRM-410U</b>
Length-----	1860 mm (73.2 in.)
Width-----	630 mm (24.8 in.)
Height-----	470 mm (18.5 in.)
Weight (dry) w/Cutter Head-----	8.3 kg (18.3 lb.)
Engine Type-----	Air cooled, two-stroke, single cylinder gasoline engine
Bore-----	40.0 mm (1.58 in.)
Stroke-----	34.0 mm (1.34 in.)
Displacement-----	42.7 cc (2.61 cu. in.)
Exhaust-----	Spark arrestor muffler or spark arrestor muffler with catalyst
Carburetor-----	Walbro w/purge pump
Ignition System-----	Flywheel magneto, capacitor discharge ignition type
Spark Plug-----	NGK BPM-7A (Gap 0.65 mm (0.026 in.))
Fuel-----	Mixed (Gasoline and Two-stroke Oil)
Fuel/Oil Ratio-----	50 : 1 Power Blend X™ ISO-L-EGD (ISO/CD 13738) and J.A.S.O. M345- <u>FC/FD</u> , two-stroke, air-cooled engine oil.
Gasoline-----	Use 89 Octane unleaded. Do not use fuel containing methyl alcohol, more than 10% ethyl alcohol or 15% MTBE. Do not use alternative fuels such as E-20 or E-85.
Oil-----	Power Blend X™ Premium Universal 2-Stroke Oil
Fuel Tank Capacity-----	1.0 lit. (33.8 US fl. oz.)
Starter System-----	Automatic Rewind Starter
Clutch-----	Centrifugal Type
Vibration Isolated System-----	Rubber cushion on engine mount (heavy duty). Rubber grip on front handle.
Operating Rod-----	28.0 mm aluminum Tube
Drive Shaft-----	8.0 mm
Gear Case Ratio-----	1:1.33 Reduction
Rotating Direction-----	Counter Clockwise; viewed from top
Cutter Head-----	10 in. 80 - tooth blade
Handle-----	U-Handle
Shoulder Harness-----	Standard
Idle Speed-----	2,300 - 2,700 RPM
Clutch Engagement Speed-----	3,500 RPM
Wide Open Throttle Speed (W.O.T.)-----	10,000 - 11,500 RPM



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